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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,164	02/06/2004	Richard J. Biskup	3WARE.010C1	7284

20995   7590   08/19/2004

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EXAMINER
IQBAL, NADEEM

ART UNIT	PAPER NUMBER
2114	

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/774,164	BISKUP ET AL.
	Examiner	Art Unit
	Nadeem Iqbal	2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 December 2000</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
     closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-17</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-17</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>120100</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
>
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
>
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
>
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
>
> manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whaley

(U.S. Patent number 5889796).

As per claim 1, Whaley teaches (col. 2, lines 25-27) a storage system that is capable of

determining whether data read from a storage medium is the data that is desired by a requesting

host. He thus teaches limitations pertains to a method of controlling a disk drive and determining

whether data returned by the disk drive was read from a correct location. He also teaches (col. 2,

lines 35-38) that the system utilizes a randomizer unit having a variable initialization value to

process data before it is written onto the storage medium. The variable initialization value is

based upon the address of the data storage location being accessed. He thus teaches limitations

pertain to an error detection sector contains a value indicating a physical location on the disk. He

also teaches (col. 2, lines 39-42) that if data is read from the wrong physical location, the data

will be scrambled and will appear to be an uncorrectable ECC error. He thus teaches limitations

reading a cluster of data from the disk drive. He does not explicitly discloses comparing the

value contained in an error detection sector of the cluster to an expected value to determine

whether the disk drive accessed data from a correct physical location on the disk drive. Loaiza et

al., teaches (Page 3, col. 1, para. 0036) a process of performing a logical operation on the data

block and comparing the results with the previously calculated checksum to verify that the data

block still has the correct checksum value. It would have been obvious to a person of ordinary

skill in the art at the time the invention was made to include the logical process on the data as

taught by Loaiza into the process of Whaley to be able to compare the results with the previously

calculated checksum to verify that the data block still has the correct checksum value. This is

because Whaley already teaches to detect when data is read from an incorrect storage location

and utilizes a variable initialization value. Therefore would clearly motivate a person of ordinary

skill in the art for the stated inclusion.

As per claim 2, Whaley also teaches (col. 3, lines 3-5) means for writing data segments to

the plurality of storage locations; error detection encoding means for encoding the data segments

before the data segments are written to the plurality of storage locations. He thus would clearly

utilize error detection codes for the data stored and also teaches that reading a cluster further

comprises determining whether the error detection code within the cluster data is consistent,

since he teaches (col. 3, lines 22-24) means for transferring include error detection decoding

means for decoding the first data segment.

As per claim 3, Whaley also teaches (col. 4, lines 15-18) that his system includes an encoder/decoder unit, a randomizer unit, an error correctional code unit, and an interface unit. He thus includes the capability to handle error detection code such as CRC code generated from all I/O data stored.

As per claim 4, He teaches (col. 8, lines 5-7) that the invention can be used in data storage systems other than magnetic disk data storage system. He thus would include an ATA disk drive.

As per claim 5, He also teaches (col. 2, lines 38-40) that the variable initialization value is based upon the address of the data storage location being accessed. He thus would also utilize a cluster containing exactly one error detection sector.

As per claim 6, Whaley teaches (col. 4, lines 14-16) a system that include a disk 12, a transducer, an encoder/decoder, an interface unit for interfacing with an external host, an initialization value determination unit, a servo unit. It would have been obvious to a person of ordinary skill in the art to realize that the stated system is within automated circuitry of a controller device, since the functionality of the above system is within the scope of a controller's functionality.

As per claim 7, Whaley teaches per fig. 1, the ECC unit, the randomizer, the interface, the IVCU unit, and the ENDEC unit, as separate from the disk unit, thus would perform as separate from disk driver's hardware and firmware.

As per claim 8, Loaiza et al., teaches (page 3, para 0036, lines 10-12) to perform a logical operation on the data within the data block to determine a checksum value and inserting the

checksum value into the data block. He thus would include sectors of the cluster belong to a single disk drive.

As per claim 9, Whaley substantially teaches the claimed invention as disclosed related to claim 1 above. He also teaches (col. 2, lines 35-38) that the system utilizes a randomizer unit having a variable initialization value to process data before it is written onto the storage medium. The variable initialization value is based upon the address of the data storage location being accessed. He thus teaches limitations pertain to an error detection system that controls a disk drive and further includes an error detection sector that contains a value indicating a physical location on the disk. He also teaches (col. 2, lines 39-42) that if data is read from the wrong physical location, the data will be scrambled and will appear to be an uncorrectable ECC error. He thus teaches limitations reading a cluster of data from the disk drive. He does not explicitly discloses comparing a value retrieved within the cluster of data to an expected value to determine whether the disk drive accessed data from a correct physical location on the disk drive. Loaiza et al., teaches (Page 3, col. 1, para. 0036) a process of performing a logical operation on the data block and comparing the results with the previously calculated checksum to verify that the data block still has the correct checksum value. It would have been obvious to a person of ordinary skill in the art to include the logical process on the data as taught by Loaiza into the process of Whaley to be able to compare the results with the previously calculated checksum to verify that the data block still has the correct checksum value. This is because Whaley already teaches to detect when data is read from an incorrect storage location and utilizes a variable initialization value. Therefore would clearly motivate a person of ordinary skill in the art for the stated inclusion.

As per claim 10, Whaley also teaches (col. 3, lines 3-5) means for writing data segments to the plurality of storage locations; error detection encoding means for encoding the data segments before the data segments are written to the plurality of storage locations. He thus would clearly utilize error detection codes for the data stored and also teaches that reading a cluster further comprises determining whether the error detection code within the cluster data is consistent, since he teaches (col. 3, lines 22-24) means for transferring include error detection decoding means for decoding the first data segment.

As per claim 11, Whaley also teaches (col. 4, lines 15-18) that his system includes an encoder/decoder unit, a randomizer unit, an error correctional code unit, and an interface unit. He thus includes the capability to handle error detection code such as CRC code generated from all I/O data stored.

As per claim 12, He teaches (col. 8, lines 5-7) that the invention can be used in data storage systems other than magnetic disk data storage system. He thus would include an ATA disk drive.

As per claim 13, He also teaches (col. 2, lines 38-40) that the variable initialization value is based upon the address of the data storage location being accessed. He thus would also utilize a cluster containing exactly one error detection sector.

As per claim 14, Whaley teaches (col. 4, lines 14-16) a system that include a disk 12, a transducer, an encoder/decoder, an interface unit for interfacing with an external host, an initialization value determination unit, a servo unit. It would have been obvious to a person of ordinary skill in the art to realize that the stated system is within automated circuitry of a

controller device, since the functionality of the above system is within the scope of a controller's

functionality, and is further known to be implemented in an ASIC.

As per claim 15, Loaiza et al., teaches (page 3, para 0036, lines 10-12) to perform

a logical operation on the data within the data block to determine a checksum value and inserting

the checksum value into the data block. He thus would include sectors of the cluster belong to a

single disk drive.

As per claim 16, Whaley substantially teaches the claimed invention as disclosed related

to claim 1 above. He also teaches (col. 2, lines 25-27) a storage system that is capable of

determining whether data read from a storage medium is the data that is desired by a requesting

host. He thus teaches limitations pertains to a method of detecting an error in a disk drive and

determining whether data returned by the disk drive was read from a correct location. He also

teaches (col. 2, lines 35-38) that the system utilizes a randomizer unit having a variable

initialization value to process data before it is written onto the storage medium. The variable

initialization value is based upon the address of the data storage location being accessed. He thus

teaches limitations pertain to a sector containing additional verification data separate from sector

that store the input/output and further teaches an error detection sector that contains a value

indicating a physical location on the disk. He does not explicitly discloses comparing the

additional verification data to an expected verification data to detect the error. Loaiza et al.,

teaches (Page 3, col. 1, para. 0036) a process of performing a logical operation on the data block

and comparing the results with the previously calculated checksum to verify that the data block

still has the correct checksum value. It would have been obvious to a person of ordinary skill in

the art to include the logical process on the data as taught by Loaiza into the process of Whaley

to be able to compare the additional verification data to an expected verification data to detect the error. This is because Whaley already teaches to detect when data is read from an incorrect storage location and utilizes a variable initialization value. Therefore would clearly motivate a person of ordinary skill in the art for the stated inclusion.
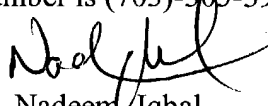
As per claim 17, Loaiza et al., teaches (page 3, para 0036, lines 10-12) to perform a logical operation on the data within the data block to determine a checksum value and inserting the checksum value into the data block. He thus would include sectors of the cluster belong to a single disk drive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadeem Iqbal whose telephone number is (703)-308-5228. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W Beausoliel can be reached on (703)-305-9713. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-746-7239 for regular communications and (703)-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-305-3900.

Nadeem Iqbal
Primary Examiner
Art Unit 2184

NI
August 17, 2004